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able, works of research be undertaken, in order to open new points of production on certain portions of the vein still unexplored. The quantity of picked ore produced in the two weeks ending the 14th inst., or since the date at which in my last letter, has been 1001, or 8009 carboys weekly, and the sales of ore on joint-account with business, have yielded the gross amount of \$6636 2, or \$3328 1 weekly—the two together giving, as a general result of operations during the said period, a loss of about \$900 per week, after providing for the expense at the mine, and for the reduction of the ore.

Royas New Contract.—With reference to this subject nothing further has transpired since the date of my last letter to the court, of the 12th inst. **Quicksilver.**—The invoice of the sixty flasks of quicksilver, received per *Pemosa*, is to hand, and the manager has been debited with its amount in \$706 138. The further shipment by the court, of sixty flasks by the *Alert*, the packet last arrived, is duly noted. J. N. SNOODEN, Manager.

Report on the state of the Workings of the Mine of Royas.

August 19.—*La Purissima.*—The general aspect of the end of Santa Victoria underwent an improvement immediately after the date of the last report, and the good appearances extended to the roof also; but there were of short duration, and the working has again returned to its impoverished state. In the pit of San Hermán the lode continued in its broken and unproductive condition so long as the workmen were employed; but the prospects here of improvement being very remote, the advanced part of the pit was suspended, and the men employed upon a very narrow band of ore which had been left against the upper part of the lode. This band, however, broke up after two or three days, and the working is now abandoned. Some ore is now being scraped together from the upper parts of the end of Santa Margarita. No alteration has been observed in the end of Santa Margarita. Nine pair of barmen are employed by day, and the weekly extraction of ore in the rough state has averaged 119 carboys, which, when picked, have yielded 55 carboys, calculated to be worth \$311, exclusive of reduction expenses.

San Cayetano.—In the pits of this mine, the ore, which are rather scarce, are now principally found in a pit opened some time since. The narrow threads of ore are being followed up in San Ambrosio, and occasionally a small bunch presents itself. A slight decrease has taken place in the produce of the roof of Paeblito, the centre of the working in the most productive point, and the quality of the ore keeps up. The extraction from the roof of Santa Cecilia is important at present, inasmuch as some bunches of rich quality are thrown down from the north-west side; from the centre to the south east side the ore are of rather an ordinary character. In the end of San Victoriana the lode is looking rather sterile, and, at the same time, it has become very compact; there were some indications of the roof becoming productive, but these have disappeared within the last few days. A slight increase of ore has been observed in the pit of San Antonio, or second pit, and there being something promising on the north-west side, an end has been commenced. The pit and end of San Feliciano do not contain so much ore as formerly; the narrow threads, which run across the workings, have broken up into small pieces. Thirty-four pair of barmen have been employed by day, and an equal number by night.

Los Reyes and San Pablo.—The produce of the pit of Santa Rita, in Los Reyes, is gradually decreasing, and the ore are of an ordinary quality; on the north-west side another communication has been made with old workings. The roof of San Pablo has hitherto proved rather scarce of ore, and although the higher part of the lode is now being reached, no improvement is observed in the general appearances of the working. Six pair of barmen have been employed by day, and an equal number by night. The weekly produce of ore, in the rough state, from San Cayetano, Los Reyes, and San Pablo, has averaged 1395 carboys, which, when picked, have yielded 434 carboys, calculated to be worth \$1408, exclusive of reduction expenses.

San Miguel.—In the advanced part of the cross-cut of Espirito Santo, an end to the north-west has been commenced, embracing several of the narrow bands mentioned in the last report. Nothing particular has been met with; a small quantity of water flows from the south-east side. The band of ore in the pit was followed up so long as it was productive, but after some days of borrasca it was abandoned. In a south-east direction this same body of ore is being pursued in an end, and occasionally some very narrow threads are found on the edges of it. The end of San Luis to the north-west, after advancing a few varas, communicated with an old working filled with rubbish. That in the opposite direction has hitherto produced rather more ore, the quality of a small portion of which is good. The point above San Luis has turned out unproductive hitherto; a small quantity of ore is collected from the other old workings. Thirteen pair of barmen have been employed by day, and twelve pair by night, and the produce of picked ore has averaged sixty-eight carboys per week, calculated to be worth \$340, exclusive of reduction expenses. There have been four sales of ore extracted on joint account with the business, amounting in all to \$15,327 7, of which one half, \$7613 7 4, belongs to the mine.

Ores sent to the haciendas—Barrera 1169
San Matías 950—2129 carboys
Ores on hand at the mine—picked 804
unpicked 675—1269
G. R. GLENNIE.

BOLANOS MINING COMPANY.

Guadalupe, July 10.—I beg to enclose herewith the San Clemente accounts for June; they show a profit on the mine of San Nicolás of \$7411—on Malancho a profit of \$92, and on Maguila, at Reguón, of \$608; on the other hand, they show a loss sustained on San Clemente of \$8377, and on Maguila, at La Granja, of \$410—on the whole, a loss of \$746. This agrees with the statement annexed to my last letter, which shows a profit of \$14,270 on the whole negotiation, although the losses on the small mines are comprised in the same; but I beg to observe—First, that in the present account is comprised not only \$3655 general expenses for April and May, which, of course, do not regard the working of the mines in June, but also \$7250 law-suit expenses of San Clemente, which item I did not put down in the statement referred to, as it became due, and was paid on the 30th ult.; whereas, in the latter, the result of the working of the mines during the four weeks ending the 26th ult., alone is contemplated; and, secondly, that of the number of montons, the produce of which is put down in my statement as returns; sixty-five were not ready for working at the very close of the month, but a few days later the benefit of the same having lasted a little longer than was anticipated. This casualty, however, is the cause of the loss sustained, apparently on Maguila, at La Granja, and of the amount of returns being smaller by 457 mes. 3 on, than what I had expected. The two before-mentioned items, which do not regard the working of the mines in June, amount to \$12,905, if the loss of \$746, which appears in the accounts, be deducted, there remains \$12,159 real profit for the four weeks ending the 26th June, a result which will be found very different from that which I put down in my statement of the value of those 487 mes. less the costs of Pao Rico, not comprised in the accounts, be added. The state of the mines of this district continues tolerably prosperous, as you will perceive by the enclosed report of Mr. Roman for June; and in the present month there will be a considerable profit left, as you will see by the annexed statement. If the mines continue in that manner some months longer, I hope to get rid of our liabilities here. I wish I was able to give you equally pleasant intelligence about Bolanos, of which concerns I beg to forward herewith the accounts for May and June, together with treasurer's account for May, and Mr. Rale's reports for last month, to the latter of which I annex a copy of a letter of this gentleman, dated 2d inst. The result shows by the May accounts is nearly the same with the one stated in my last letter, and I refer to the observations I took then an opportunity to make about it. The result of June is far more disadvantageous, not from the costs of Bolanos, which are very moderate, but owing to the small amount of returns, and the loss on the Maguila at the swirling establishment, both occasioned by the circumstances already mentioned in my last, which could neither be foreseen or prevented. As regards Mr. Rale's letter of the 2d inst., I observe that, in my reply, I stated that the sinking of San José shaft could not now be resumed, nor indeed at all, whilst no certain resolution with regard to the mine had been taken by the court; that if the works Mr. Rale proposes to stop can really be dispensed with, they ought to be stopped, and which has since been in part done, owing to their unproductiveness.

July 18.—Yesterday I was underground and it is a great satisfaction to me to tell you that the state, both of San Nicolás and San Clemente, is hopeful. Most of the workings look promising, and we may anticipate a profitable profit for August, or, for some time to come, the extraction will be about the same as in June. The end driving north, on the transversal vein, in the level of Dine non Gole, in San Clemente, is very promising. In the level of San Fernando, about fifty-two varas west of the principal shaft of that mine, a few days ago a crosscut was commenced for the account of San Nicolás, by which we intend to cut at a greater depth the course of rich ore on the boundary of both mines, on which, in the level of San Francisco, our best workings are situated. As soon as our circumstances permit, I intend to resume the sinking of the shaft, which it is indispensable to sink about fifty varas, if the working of the mine of San Clemente is to be continued. The key of the ore goes on improving, and the average produce of all the ore which are to be beneficiated in the present month is expected to be near 19 mes. per monton.

August 1.—Since I had the honour of addressing you on the 18th and 19th ult., I have not received any dispatch from your office, as the correspondence of the Maypachos has not yet arrived at Zamora; it being probable that the ore is at Vera Cruz already, and that this letter would not reach here, I send the present to Tancitaro, with orders to forward it to England and United States. The above produced here last month did not amount quite to the quantity expressed in the statement annexed to my last letters. Up to the 26th ult. the silver introduced into the mint amounted to 6971 mes., and in the week ending 31st ult. were introduced 1236 mes., less a few mes. lost

in casting into bars—thus the whole is about 6000 mes., or not quite 450 mes. less than I stated. The reason is, that two for as, one of ore from Pao Rico, and the other composed of 313 montons of San Clemente ore, the produce of which I had included in my statement, were not ready for washing on the 31st ult. Had the beneficiating lasted a shorter time, and could the silver to be obtained from them have been introduced into the mint, the whole production of the month would have been upwards of \$6700 mes., or considerably more than I had anticipated, owing to nearly all the ore having yielded more than was presumed. The key of the ore is improving greatly. The last torta of San Nicolás, incorporated on the 24th ult., assayed 263 mes., and the last torta of San Clemente nearly 16 mes., and a torta of seventy montons of ore of San Nicolás is about to be incorporated, which is expected to assay as much as the former. The silver corresponding to the raisings of last month (I do not say the key, but what the ore are expected to yield) is upwards of 6500 mes., and I hope this will be the produce for the present month; if the extraction in this and the next week continues the same as it was, and the workings look very promising, a similar produce is also secured for September, and, in that case, we shall be able to cover the claims on the company, due at the end of next month.

August 11.—In my former letter, dated 1st inst., I stated that I was in anxious expectation of the arrival of the May packet; I have since then received your letters, dated 2d May, by which I learned the steps that had been taken by one of the shareholders to cause a delay in the carrying out of the resolutions passed at the last meeting of the proprietors; but I am happy to be able to assure you that, by such proceedings, the credit of the company will not be impaired, at least in this country, while our mines here continue so prosperous as they have of late. Herewith I beg to enclose the accounts of the San Clemente negotiation for July, by which you will learn that a considerable profit was obtained in last month. By the annexed statement you will likewise see that, in the present month, a far more considerable profit will be left, and we may already anticipate a profit for September also; these documents, together with the miners' report for July, of which I beg to submit a translation, show sufficiently the actual state of the negotiation, and thus I may be dispensed with adding some further observations for the present. With regard to Pao Rico, the annexed statement shows likewise that, since the resumption of the working in April last, the mine has not been worked on an actual loss, and thus we may go on still with the hope of making a discovery of some importance, although it is no longer necessary to continue the working, with the view only to protect the mine against denouncement. Considering the present state of the concern, I can but repeat, that I hope the company will be able to cover the claims due at the end of next month out of the produce of the mines. From Bolanos I have not yet received the accounts for July, nor Mr. Rale's report for the same month; according to the weekly reports I receive from that place, I expect, however, that the loss sustained in July will not exceed \$4000, and considering that a part of the costs is only nominal, and that another part consists in expenses for protecting mines, which I am not authorised to return to their owners and inspectors salaries, it is obvious that the loss of Bolanos cannot have been great by any means.

August 17.—I have not yet received the usual monthly mine report from Bolanos. The July accounts were not ready, but Mr. Garret has given the following figures as the result, viz.:

Loss on Bolanos	\$1429 2 7
Ditto Intermedio	38 2 5
Ditto Camachin	161 6 0
Ditto Teyo	109 4 0
Ditto Concepcion	267 4 0
Ditto Sargos	143 1 0
Ditto melting establishment	1664 0 4
Salaries and general expenses	4790 6 8

\$8657 3 8

To be divided over the negotiation—deducting \$3623 gain on the hacienda Chica, remains a loss of \$6034, or about \$7000 more than I had mentioned in my last letter, as it appears, as to item due to the house of Luna and Co., at Guadalupe, for agency. The cash on hand at Bolanos, on the 31st ult., was \$23,050. In my statement of the probable produce of silver here for the present month, which I transmitted with my last letter, I have to add, that the torta of twenty-four montons of ore of San Clemente, which is to be washed in the fourth week of the month at Reguón, has assayed 33 mes. 3 on., and that, besides the tortas enumerated in the last report to statement, another torta, of twenty-five montons of ore, of the same mine, assaying 25 mes. 1 on., has been incorporated in the course of last week at La Granja, which probably will also be washed in the present month, in which case the whole quantity of silver produced will amount to nearly 10,000 mes. On the 24th inst. we shall have already about \$50,000 at our disposition for paying off a part of our debts, for which reason I have ordered the sum due on the 13th proximo for quicksilver, purchased of Mr. Korrison, to be paid. Owing to the high ley of the ore, a large quantity of quicksilver is continually employed in the beneficiating; for instance, one torta (sixty montons) of San Nicolás ore has already received 6750 lbs., and will require 1060 lbs. more, besides 1000 lbs. necessary in the operation of washing, and so the other tortas in proportion; thus our stock of that substance is rather inadequate to the present production, I have, therefore, purchased 200 flasks more, at \$130 per quintal, payable in two months from delivery. The extraction of last week was 336 carboys at San Clemente, and 318 carboys at San Nicolás, or, adding the usual surplus respectively, about 370 carboys and 340 carboys; according to the data contained in the statement annexed to my former letter, the value of these raisings is very considerable, and will leave a profit of \$7000 at least on the expenses of the mines. At Pao Rico, in the level corresponding to the depth between the 60 and 100 vara cross-cut, a canon is driving east on the vein, three varas wide, containing a great many strings of ore—the stones broken from which assayed 6 mes. 3 on. per monton. As the vein is so very wide, it will be profitable to commence a working on that point; should the ley improve—that is to say, should the strings unite, so that less tortas be mixed with the ore, the mine may soon become a valuable one. When speaking of Bolanos, I mentioned only the cash on hand, and forgot to state that the silver on hand was, on the 31st ult., 3900 mes. cast into bars—thus, towards the end of the month, there will be, I hope, upwards of 5000 mes. ready for sending to Guadalupe, and in that way the Bolanos negotiation may go on, even with some loss for some time, without requiring aid from here. I remark, however, that the information I received from there on the state of the mine, incomplete as the notices are, does not contain any agreeable news, and I fear that, with regard to that negotiation, nothing will be left to be done but returning it to the owners.

Mine Report for June.

July 3.—I send you the usual monthly reports for June. By the ore report you will observe that the total quantity for the month, including partide purchased, amounted to 2763 carboys; of the 400 carboys put down as obtained from "the clearing and sweeping over yard," \$200, about 100 was extracted from the re-clearing of Deserón, and contained about 9 on. per carboy; 200 were Tierras de Quabanderos, and the remainder sent up from underground on hacienda account. Attached to the ore report you will find a summary of the partide purchased in the month, by which it appears a small profit will be made. I propose to insert monthly this statement, provided you approve of it. I am sorry to inform you that the ley of the ore from Guatemal workings have fallen off considerably within the last few weeks, and the assays for last week barely averaged 1 on. per carboy; the ore from Arizones level contain nearly 6 on. per carboy, and San Félix mines and San Tomas level may be called poor, although they are in a large and promising vein, containing good platas. The labor of San Rogelio, in the vicinity of San Martín level, continues to yield ore of a tolerably good ley, averaging from 12 on. to 14 on. per carboy, but as they contain a rather large proportion of argente, the barretters show a disinclination to work on this kind, preferring always such labores as produce only argente, for which they obtain a readier and better sale; the haciendas, however, have invariably purchased all the partide that the barretters have been otherwise unable to dispose of, so that this obligation would appear to be removed. Since the commencement has been made in La Cruz level, between the mines of San Miguel and San Antonio, and between the latter and Santa Barbara, all the barretters are anxious to procure labores in this neighborhood, because the ore are, for the greater part, argente, and contain a tolerable good ley; the ore part of the vein in the pine averages from a half to three-fourths of a vara wide, the best part being in the bottom and immediate vicinity of Santa Barbara, where, and as the ore lately discovered in the Lorenza level seems to indicate a continuation of the same to that depth, we may expect a steady supply for several months to come from the ground above the last level. In San Lorenza we have now passed through about ten varas of ore ground, and although it cannot be termed a rich course of ore, yet it will afford a profitable working, and the vein altogether is of a very promising description. This circumstance has naturally called our attention to the importance of the resuming the sinking of San José shaft, which is already sixteen varas below San Lorenza, and is short only eight varas of the depth proposed for the new level; to complete this, and drive the cross-cut, which will be about thirty-five varas in length, we calculate would take about eight months, and, in about that time, the ore ground above San Lorenza will be nearly finished; the importance of this work is very great, and in order not to increase the amount of network, I would venture to suggest the suspension, in the meantime, of the following works:—Santa Tomas level, south of San Félix mine; San Félix mine, below Santa Tomas level; Arizones level, south of Guatemal mine; and if these reductions should not be found equal to the increased expense of the shaft, I would even suspend all the other workings that are not producing ore—such as Taylor's and San Martín's levels, driving north, which I consider, at the present moment, of some importance, when compared with the sinking of San José. When the shaft was suspended, we had not then cut the vein in San Lorenza, but now that we have seen such a

promising vein in this place, the motive for resuming the sinking, in my opinion, is sufficient to warrant the resumption of this work. The quantity of ore raised this week will be about 600 carboys, not including partide purchased, but a great inconvenience has been felt, owing to the want of castles, which I hope you will soon be able to send us, as the number is getting daily less. I have looked over the accounts of last month, and, so far as the Bolanos mines are concerned, there is no item of expenditure that required particular notice; indeed, the rays, during that period, have been very moderate, but the expenditure of hacienda Chica is unusually high, occasioned principally by the great consumption of materials used in the beneficiating of tortas of the Relaves de Concentración.

Summary of Costs and Returns for June, 1861.

Costs	\$33,084 3 1
Returns	32,430 1 8
Loss	\$654 1 4

July 8.—*San Clemente.*—The transversal vein, on which we had a bargain, has proved very inconsistent during the month, it sometimes producing bronzes, of a middling quality, with some platas, and sometimes becoming entirely unproductive; towards the end of the month we met with a revivo, underlying south, which crossed the vein without occasioning a heave, but rendering it unproductive, and the veinstone, as well as the greenstone on the walls, pretty soft. We commenced a rising and a sinking winze on this transversal vein, but had to abandon them a few days after, owing to the argente of good quality not continuing either in the downward or the upward direction. The hope I expressed in my last report, that the extraction of ore would increase this month, has been fulfilled, but not in the degree that I expected. To this increase contributed chiefly the winze No. 2, in San Francisco, from which 463 carboys of good argente were raised—upwards of 4 1/2 lbs. of the whole extraction; add to this the good ley of these ore, and it will become obvious that, all being worked on carge, the just-mentioned working is at present the most important one of the whole mine; thus, it is much to be regretted, that not before long it will be communicated to the level of La Luz, where the ore are but of an inferior or middling quality. The rising winzes, Nos. 2 and 3 in San Antonio, produced 163 carboys argente of good quality; also those points are the only ones working on entire ground, for, in the lower levels, we are reduced to the working away of the pillars left between the levels and between the winzes, for which reason it is very desirable that a point should be discovered where to commence a new working, in order to ensure the continuation of the extraction of ore; this latter amounted to 18014 carboys.

San Nicolás.—With the western end of San Francisco we have not yet reached any good ore; in the beginning of the month some platas of sulphuretted and native silver occurred, but did not continue, and at present the end is an unproductive vein. In the winze working in its immediate neighbourhood the width of the ore is from a half to one vara; towards the end of the month we met with a horse of silicious slate, which divided the body of the vein into two branches—since which time the quality of the ore has fallen off a little. The rise which was commenced above the cross-cut of San Francisco, on the vein of Buen Suceso, and on the spot where the latter is communicated to Malancho, we have met with a rough, five varas long and three varas wide, the sides of which are covered with quartz, galena, and iron pyrites, crystals—the latter ones in the shape of pentagonal dodecahedra; the firm extremities of this rough in the downward direction, and towards the west, are composed of galena and blende, not containing silver; the other workings have continued yielding good ore, with the exception of the rise No. 2 de Esperanza, which we shall be obliged to give up. The extraction was 903 carboys.

Summary of Costs and Returns for June.

San Clemente—Costs	\$36,084 6 0
Returns	17,716 7 4
Loss	\$18,367 8 4
San Nicolás—Returns	31,045 1 4
Costs	17,833 7 0
Profit	\$13,211 3 4

August 6.—*San Clemente.*—We are occupied already with executing the plan which I had consulted you about verbally, in examining the vein of Buen Suceso, in the level of the Canon de San Fernando, by driving from the western end of the same a cross cut due north, which is advanced nearly ten varas. At the beginning the ground was a dark-colored greenstone, of middling hardness; after driving a few varas, we met the true silicious slate, which was intersected at first by many crevices (a great obstacle, as it proved to the work advancing rapidly), but it is now entire and hard. A few days ago we met a narrow branch of the vein, showing galena and bronzes caldera. By the general inclination and direction of the vein of San Clemente, as well as of that of Buen Suceso, I calculate that we shall cut the latter by driving on the cross-cut eighteen or nineteen varas, and thus, at the end of the present month of August, or at the beginning of September, we shall probably know the character of that vein in the deepest part of the mine. It is not impossible that we cut it near or beyond the boundary line between the mines of San Clemente and Malancho. The transversal vein in Dine non Gole has undergone great changes. In the beginning of the month the ore disappeared on the several branches underlying east, and the underlying became west by degrees, and there appeared bronzes of good quality, which have improved since greatly, and contain much sulphuretted silver and native silver. At the same time a change was observed in the direction of the vein, which can no longer be called, with propriety, a transversal vein—its strike being at present nearly parallel to that of the vein of San Clemente, from which it is distant about fifteen varas towards the north. Near the end we have just commenced a rising winze, which is worked on carge; as yet it produces but few argente, but they are of a very good quality, and contain a great deal of sulphuretted and native silver. The working on carge was more productive in July than in June, the weekly produce being 4154 carboys at an average, in lieu of 3754 carboys, to which it amounted in the preceding month; besides the increase in quantity, there was also observed an improvement in quality—the ore assaying at present from 154 mes. to 16 mes. on an average. The pass No. 2 in San Francisco, which, in the preceding month, was the most productive working, has failed in a very sensible manner, as regards quantity and quality of the raisings. Already, in my former report, I observed that such would have been the result of the working reaching the Canon de Luz; only a few pillars, of little importance, remain to be worked away. The point of most importance is at present the rise above the crosscut of San Francisco, upon the vein of Buen Suceso, the eastern part of which belongs to San Clemente. Here there is a cleft—sometimes two clefts—one fourth of a vara wide, composed of argente, containing a great deal of native silver; the walls of the vein are clothed, more or less, with thin crusts of that substance. To these ore the improvement of the average ley of the ore produce of the mines is due. From the winze No. 3, and the eastern tiro, in Dine non Gole, an account of good quality, are obtained still, only the working of San Antonio has failed a great deal of late. The extraction amounted, in the month of July, to 3077 carboys.

San Nicolás.—The end of San Francisco, going west, was driven on seven and three-quarters varas, but the vein proved a little productive, as in the preceding month; its width varied from one and a half vara to two varas, and it is composed of quartz, galena, blende, and bronzes caldera—good platas being a rare occurrence. In the large winze, in the same canon from which the good ore were raised formerly, the ore part of the vein has continued growing narrower, owing to the horse of silicious slate, mentioned in my former report, so that, only in the western side of the winze there remains a bunch of ore, one and a half vara long and one-sixth of a vara wide. It would be inconvenient to have on this point a network-largue (stopping in the meanwhile the end above the winze, in order not to increase the number of bargains), and to try if we meet again such good ore as we had before—thus the winze might perhaps become more productive, while we are losing nothing in suspending the end, which, several months since, was driven on an unproductive vein, as soon as the winze could be worked again on carge, to some advantage, the driving of the end might be resumed. The clefts points of the mine are at present the rise above the cross-cut, in the same level, and the winze No. 2. These are the workings which produce the best ore we have; they yield 4461 carboys, and it is to them that the high average ley of the ore of the mine, of from 35 mes. to 37 mes., is due. The workings of Buen Suceso and La Esperanza have produced but few ore, and in the western (and) rise of San Fernando, No. 3, the ore part was narrow like-wise. It yields, however, sometimes very good argente, but this last-mentioned working will soon be finished, owing to the neighbourhood of the old workings. The extraction amounted to 1205 carboys.

Summary of Costs and Returns for July, 1861.

San Clemente—Returns	\$30,412 5 0
Costs	16,719 7 8
Profit	\$13,692 7 2
San Nicolás—Returns	33,159 4 0
Costs	19,770 7 4
Profit	\$13,388 6 6

REEL ONE MONTH MINING COMPANY.

[We are compelled to defer the insertion of the correspondence of this company until our next, when it will be given entire.]

ROYAL POLYTECHNIC INSTITUTION.—NEW and IMPROVED LECTURES will be delivered next Thursday, the 21st inst., and on the Saturday, Tuesday, and Thursday following, at Two o'clock precisely, by Professor CLARK, of the University of Aberdeen, on his PROCESS for PURIFYING the WATERS SUPPLIED to the METROPOLIS, by separating from them the vegetable and coloring matter, destroying the insects, and withdrawing from solution a large quantity of solid matter, not separable by mere filtration; to be illustrated by experiments. Various other popular Lectures and Exhibitions, and nearly 2000 works, which display eminent skill, science, and ingenuity. Open, mornings and evenings, except Saturday evenings.

MR. WICKSTED'S PAPER ON THE CORNISH ENGINE.
AN EXPERIMENTAL INQUIRY concerning the RELATIVE POWER of, and USEFUL EFFICIENCY produced by, the CORNISH and BOULTON and WATT PUMPING ENGINES, and CYLINDRICAL and WAGON-HEAD BOILERS, in quarto, extra cloth boards, price 1s.
By THOMAS WICKSTED, M. Inst. C. E.
J. & H. WOOD, 25, High Holborn.

THE PATENT SAFETY FUSE.
FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS. This article affords the safest, cheapest, and most expeditious mode of effecting this hazardous operation. From many testimonies to its usefulness with which the Manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c., &c.:—

"I am very glad to hear that my recommendations have been of any service to you. They have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, RICKFORD, SMITH, and DAVEY, Cornhill, Cornwall.

THE THAMES TUNNEL is Open every day (except Sunday) from Nine in the morning until dusk, and is brilliantly lighted with gas. The entrance is on the Surrey side of the river, close to Rotherhithe Church. The Foot Passengers' shaft at Wapping, and the remaining portion of the Tunnel, in order to form a junction with the said shaft, are now in active progress towards completion. Admission, One Shilling each. By order, J. CHARLES, Clerk to the Company. Wapping, October 16, 1841.

PUBLIC COMPANIES.

Bolton Mining Association	Office	Oct. 24	11-12
Tamar River Lead Mining Company	14, Finsbury-square	29	7
British Iron Company	London Tavern	Nov. 20	1
Glasgow, Oct. 19, 1841.			
Edinburgh & Glasgow Railway	32	Oct. 19	Glyn and Co.
East Trestle Mining Company	34	Oct. 20	Barclay and Co.
St. John del Rey Mining Co.	104	Nov. 9	Barclay and Co.
Cambrian Iron and Steel Co.	24	Dec. 2	London Joint-Stock Bank
LIVERPOOL, Oct. 16, 1841.			
The Miners' Company	24 per cent.	Office	Oct. 21
Coburn & Co. Mining Company	14 per share	Office	Oct. 21
United Hills Mining Company	10 per share	Office	Oct. 21

NOTICES TO CORRESPONDENTS.
THEORY OF THE STEAM ENGINE.—We have received a very long communication from the Count de Pambour, in reply to the letter of Mr. Parkes, inserted in a former Number, but, owing to the late hour at which it reached us, we have not been able yet even to read it, much less form an opinion as to its being a subject fitting for our columns.

MINES REVENUE.—We have several communications in type on this subject, but which, together with much other valuable and interesting matter, must stand over until our next.

PERKIN AND WYER RAILWAY COMPANY.—We are compelled to defer the insertion of our report of the meeting of this company held on Tuesday last.

A report, since our, will, doubtless, be received per Neptune, on subject of the interview, which, we regret, was of too limited a nature to be satisfactory to all. We will endeavour to draw up some memoranda, which shall be transmitted, or will be happy to enter into further particulars on our proposed visit to the Elbe and other districts, to which our attention is likely to be shortly directed.

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, OCTOBER 16, 1841.

The remarks that have lately appeared in our columns on the spelter trade—assuming, as it does, an importance which, some few years since, was never calculated upon—and the interest which the subject has generally excited, as well as the value we attach to statistics connected with this or any other branch affecting our mineral products or those of other countries, induce us to adopt the substance of some very pertinent observations made by Messrs. SHORT and MAHONY (a firm of high standing as metal brokers), accompanying the tabular statements which appear in our last page, and to which we invite the particular attention of those interested in the manufacture or application of zinc.

The several articles in the MINING JOURNAL, treating on this subject, have naturally attracted the attention of the English miner and capitalist, and we have reason to believe that, ere long, we shall be in a position not only to advance the interests of the home miner, but to protect the manufacturer from excessive prices, for such, without reference to the comparative value of this metal with others, must be considered to be the case, when we find it, in less than three years, to have doubled its price, or nearly so—it then being quoted at 18s. per ton, while the present price is 33s. to 33s. 10s. per ton in bond.

We will at once proceed to those remarks which apply to the tables already referred to, which will, in addition to the statistics already furnished, doubtless satisfy Mr. ANCHUTZ, and other sceptics, that "facts and figures" are the data on which, after all, our conclusions must be based. The home consumption of England has gradually increased, being, in 1828, only 520 tons, while, in the two past years, it has exceeded 4000 tons per annum, which is evidenced by the tabular matter to which we have already made reference. It may be well here to show the quantity forwarded from Breslau for the past three years, making them up to the 31st August—we thus find, in 1839, the quantity was 13,300 tons; in 1840, 9875 tons; and in 1841, 6365 tons; so that, whilst the annual consumption of England (as well as that of France, which consumes from 8000 to 9000 tons) has increased, the production of the article has been diminished, which is manifest from the fact, that, in 1839, when the price was about 19s., the quantity forwarded from Breslau was 13,300 tons; in 1840, when the price was about 22s., it was 9900 tons; and this year, the price being 33s., the quantity is reduced to 6400 tons.

It must be self-evident, that so great a falling off in the supply is only to be ascribed to a diminished production of the mineral, or an increase of consumption in Germany, for it cannot be supposed that large stocks are held in Silesia when the price here has been so considerably enhanced. It further appears that the consumption of England to the end of last month is very little less than that in 1840; and although the stock at the present moment is 800 tons more than on the 31st of December, the stock in France does not now exceed 300 tons, being only one-fourth the quantity held in January last. As the exports from Great Britain to India have a considerable influence in the consideration of the question, it may be remarked, that, for the past eighteen years, ending Dec., 1840, they give an average of 3300 tons per annum, while the stocks in India on the 1st of January last, it is confidently stated, were not a fourth of the quantity sent direct from Hamburgh and Danzig in 1826 and 1827; from which it appears perfectly clear, that all spelter shipped from this country has been absorbed, and, moreover, that the consumption of India is at least 3500 tons per annum. For the last five years spelter has been sent thither from this country on an average of 1675 tons per annum, or one-half the consumption, while, throughout the first eight months of this year, only 450 tons have been shipped. This falling off has, doubtless, been caused by the sudden rise of prices in Europe, having deterred shippers and stopped the supply—the consequences

are now, it would appear, beginning to be felt, more especially, at Calcutta, from whence every succeeding overland mail brings higher prices; and it may be fairly calculated upon, that when the advance here, and the great falling off of shipments becomes known in that market, a rapid rise will be the consequent result—the stock not exceeding 300 tons in importers' hands.

The quantity imported into England in the present year is nearly 4000 tons, which may be said to form four-fifths of the entire supplies which can be calculated upon before the close of the navigation for the winter. The stock may be taken at 2300 tons, and it is not probable that more than 1000 additional tons will be imported this autumn. France has imported but a comparatively small quantity this year, although the demand is rapidly increasing—India has only one-seventh of her required supply—and here the consumers are nearly all out of stock; under these circumstances, it is clear that, for the anticipated wants of England, France, and India, until April next, when the spring supplies begin, we are to depend on a supply, including the present stock and expected imports, of less than 4000 tons. From the tabular statements already referred to, and the preceding remarks, it must, then, be manifest that it is the consumption which has caused the rise in the price of spelter, and that, however speculation may have been indulged in, it is not attributable to that source.

By the latest accounts received from Calcutta (18th of August), we find that spelter, which was 11 rs. 4 ann. in the early part of July, had risen, in consequence of the demand from the interior, to 14 rs. 12 ann. on the 17th August, and buyers were then to be found at 15 rs. per md.—45s. per ton gross; this rise took place when the latest advices from England quoted only 27s. to 28s. per ton, since which a rise of 6d. per ton has taken place.

It is unnecessary to say more—"facts and figures" are before our readers—and the conclusion at which they must necessarily arrive, is that of a prospective advance in the price of spelter, until the supplies from abroad shall be increased, or means rendered available at home, whereby we may, as in the case of sulphur, be independent of foreign produce. We are well pleased to have the opportunity of submitting the tables and observations, already acknowledged, in corroboration of the views taken by us some few weeks since, when treating on the subject; and we hope, on an early occasion, to be able to collect the various data to furnish an interesting paper on the produce and application of this valuable metal, which is daily attracting increased attention.

The proceedings at the meeting of the Talacre Coal and Iron Company, on the 13th inst., have fully borne out the correctness of the remarks we have made from time to time on the shameful abuses practised on the victimised shareholders; and the report presented has, in strong colours, but with a dark shade, truly painted Mr. Alderman THOMAS WOOD, Mr. WARWICK WESTON, Mr. DAVIS, Mr. BAKER, Mr. BAGNALL (the celebrated engineer), the worthy Aldermen of Dublin (Messrs. HODGES and HYNDMAN), Mr. FOTTELL, Mr. R. RAWSON (of Nottingham), Mr. SHOOBRIDGE (the last of whom, under the garb of saintly hypocrisy, induced parties to embark their capital) and the other worthies, whose names, to record, is but to disgrace our columns.

It would not be fair, in the absence of the counter-statement of the conectors, to enter upon the report of Mr. ASHURST, which we regret is not more pithy, for the facts were so glaring, that it required not so diffuse a statement to expose the abuses which have been practised. All that Mr. Alderman WOOD (not Sir MATTHEW WOOD) has put forward at the public meetings about his honesty and his principles (despite our continued charges, and to which the shareholders are indebted for the *exposé*, which should have taken place some eighteen months since), proves to be false; he has throughout been playing a double game, and we cannot expect otherwise than that he will avail himself of the earliest opportunity of "doffing" the aldermanic gown. It is really painful to read a report such as that which appears in our columns, and at the same time reflect that one of the chief actors is a magistrate of the City of London, and who, by rotation, would next year fill the civic chair. Having now the report of the directors—for such must be considered Mr. ASHURST's statement—the counter report of Mr. Alderman THOMAS WOOD and his coadjutors, and, further, that of the committee, we will endeavour, on the publication of the entire documents, to frame an abstract of the "moves" of the party, which shall serve as a beacon for future times, and, if we mistake not, bring down upon the unprincipled projectors at least the odium of the public, if not the award of justice.

We recommend to our readers, whether interested or otherwise in the Talacre Company, to read the report of the proceedings and the statement of Mr. ASHURST; and we further recommend them to peruse the Journal of the 25th Sept. last, wherein will be found a digest of the articles which have appeared on this subject from April, 1839, up to that time. Let them compare our charges with the representations of the directors, and it will be found that not only were we right in the course we pursued, but that thousands would have been saved had our advice been taken—and they will, we feel assured, agree with us—that the principals in the business are even worse than JOSEPH PIKE, WM. MILLETT THOMAS, or any other wholesale destroyer of public confidence.

The first quarterly sale of tin by the Miners' Company took place on the 14th inst., on which some remarks will be found in our last page. If we cannot congratulate the mercantile body and the consumers on the results, it is highly satisfactory to us to find that, so far as the miner and the interests of the company are concerned, the issue has been one of a successful character. The opinion was boldly advanced, that the consequence of this large sale, involving an amount of 70,000l. to 80,000l., would be a heavy fall in the price of tin, whereas the result is—the holders being stiff, and even higher prices demanded.

With the view of explaining the remarks which are appended to our prices of metals, which emanate from a gentleman thoroughly conversant with the metal market, it may be right to observe, that the Miners' Company have effected their object in one sense—that of protecting the miner from the clutches of the smelter-merchant, who is now compelled to purchase his merchantable tin from the Miners' Company, and thus the miner is protected. That the consumer was disappointed, we do not entertain a doubt—we have ever supported the Miners' Company as the friend of the miner, while the quarterly sales, which will be strictly adhered to, afford a wholesome check on the trade.

We are given to understand that four-fifths of the tin, or 800 tons, have been taken by the large houses (for the public sale was insignificant in the extreme), and thus prices are maintained instead of being lowered; the remaining 200 tons, we presume, will be sold by the company at the current price of the day, after which no further sale will be effected by them until the next quarter. In the meantime the stock of tin is transferred from the Miners' Company to the merchants, who will, doubtless, uphold the price. There is a spice of monopoly, we must admit, in the system not calculated to advance the interests of the consumer, but we think him better off than under the ancient regime—while we are quite satisfied the miner meets with fair dealing and protection which he could not before reckon upon.

The movement on the part of the Miners' Company was bold. We are glad to find it attended with success, and trust that the mine adventurer will consult his own interest, in lending his best aid in promoting the object which the company have in view—that of protection to the miner and mine adventurer, "one and all."

ORIGINAL CORRESPONDENCE.

ON THE PROPERTIES OF ANTHRACITE. TO THE EDITOR OF THE MINING JOURNAL.

SIR,—One of the most extensive and valuable mineral districts in the United Kingdom has been opened out by the formation of canals and railroads in the country to the north and east of this place—I allude to the Gwendraeth Valley, to Cwm Amman, to the great mountain, and the contiguous localities, in which anthracite is the prevailing fuel, lying in great abundance, and much of it of first-rate quality. All parties conversant with the subject agree cordially upon the main point, that anthracite is very valuable as fuel for smelting iron ores, however they may differ in minor details. As the subject cannot suffer by discussion, I trust I shall be pardoned for hazarding opinions, because, if erroneous, they are likely to be exposed without doing any injury when the public have such able guardians as the gentlemen of first-rate talent and tried experience, who are accustomed to offer remarks through the columns of the *Mining Journal*, and who, I am persuaded, would not allow a mis-statement to go uncontradicted. The commencement of manufactures in what may be termed a maiden field offers an opportunity for establishing any improved method of working, which it is a pity to neglect. I repeat my firm conviction—a conviction strengthened by Mr. Brough's letter of the 20th ult.—and there is nothing in Mr. Williams's letter of the 4th inst. likely at all to shake it—that the great advantages which should result from the use of anthracite as fuel for smelting iron, are for the most part thrown away by the expensive means resorted to to make use of it. So far as chemical science extends in the present day, I agree most fully with Mr. Williams's reasoning; but I beg leave most respectfully to state, that I think Mr. Williams has overlooked some important points in the mechanical structure of the two descriptions of fuel—coke and anthracite. If a piece of coke comes through a blast-furnace of any size, which is of rare occurrence, it is a light porous body, perforated, so that it is quite evident to a careful observer that the blast has forced a free passage through it; but pieces of anthracite of 2 lbs. or 3 lbs. in weight will come from the furnace, merely charred over the surface—furrowed, if I may use the term—evidently by the action of the blast forcing passages between two pieces of coal, or between a piece of coal and the other materials lying in contact with it. Such pieces of coal, upon being broken, exhibit their interiors as fresh as when taken from the mine, altogether unchanged—such is not the case with coke. As Mr. Williams must be regarded as a high authority in all matters connected with combustion, I take the liberty of hazarding an opinion on the subject—viz., that nitrogen has some more important part to perform in the operation of combustion than has been hitherto assigned to it, in the present theory of combustion. Mr. Williams must not misunderstand me; I do not pretend to breach any new theory, but merely give a crude idea upon a subject which I freely confess I do not understand. The interchange of ideas may produce some good.

Liverpool, Oct. 11.

I remain, Sir, your's, &c.,

T. H. LEIGHTON.

THEORY OF THE STEAM ENGINE.—MR. PARKES AND M. DE PAMBOUR.

TO THE EDITOR OF THE MINING JOURNAL.
SIR,—In your Number of the 18th ult. you have printed a letter of Mr. Parkes relating to me; in answer to which I shall only beg you to insert not a fresh reply, but merely the paper itself, to which Mr. Parkes's letter was intended to be a reply. Your well-known impartiality induces me to expect that this request will be granted without difficulty. The paper in question, copied without any alteration whatever, is enclosed in the present letter, under the head "On the Momentum proposed by Mr. Josiah Parkes, as a Measure of the Mechanical Effect of Locomotive Engines."

In that paper the following words occur—"The author tells us that he is more accustomed to handle the hammer than the pen." But I have since perceived that I had there, by mistake, attributed to the paper of Mr. Parkes, "On Steam-Boilers and Steam-Engines," a phrase that I had read in the work of Mr. Armstrong, *On the Builders of Steam-Engines*, Preface, p. xi. Weale, 1839. The two works having come to me at the same time, and being precisely on the same subject, I had made an error in ascribing to the one what in reality belongs to the other. This point is, however, without the least importance, having no reference to the arguments presented in my paper, and I correct it only for the sake of accuracy. Now the whole of this controversy is before the public.

The whole matter being so before the persons interested in those questions, every one of them, by recurring to the articles which have already appeared, will be able to judge which side of the question is the right one, and therefore it would be quite useless for me to say anything more on the subject.

I remain, Sir, your's, &c.,

G. DE PAMBOUR.

[We insert the letter of the Count de Pambour, but as we cannot see that any advantage would arise from the reprinting of a paper already before the public, and which would occupy considerable space, we have omitted its insertion. We shall be glad at all times to render our columns the medium of any communications which may develop new facts or opinions.]

CONSUMPTION OF SMOKE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—If the correspondent whose communication appeared in your last, signed "T. H.," was not satisfied with the "highly satisfactory testimonial of the manager of the Liverpool and Harrington Water-Works," but "had the curiosity to examine the two 30-horse boiler-furnaces himself," it is strange that he had not also the curiosity to inquire how much coal was saved, and how much more (or less) steam was required by the engine now than before the application of Mr. Williams's patent? Without this information, I consider both "T. H.'s" epistle, and Mr. Thompson's testimonial, as unsatisfactory evidence as any "speculative patentee" could venture to put before the public. As to "T. H.'s" "perfectly astounding" fact, "that the instant the air was re-admitted to the patented air distributor the smoke died quickly away," so it would, and does, whenever the furnace door is opened. This is the old smoke-burning trick of twenty years ago, which so effectually took in the late M. A. Taylor and certain other wise Members of Parliament, as well as various "scientific" and "speculative" patentees of that day.

I remain, Sir, your's, &c.,

Liverpool, Oct. 10. AN UNSATISFIED INQUIRER ON THE SPOT.

CHEMICAL CHANGES IN MINERALS BY ELECTRIC AGENCY.

[From the proceedings of the Royal Geological Society of Cornwall.]

MR. HENWOOD said—Sir Charles Lemon and gentlemen, as the subject of chemical changes induced in minerals by electric agency, to which my friend, Mr. Carne, has so well alluded, has never been brought under the notice of this society, and as an attempt to put my own views before another society, some years ago, was most uncourtaneously suppressed, I will take, with your leave, this opportunity of my last appearance among you to point out the present position of the question. Several years ago, Monsieur Berquerel, a French philosopher of high eminence, made, among other experiments, the following, which contains the germ and root of everything that has been since done. He took a glass tube, curved into the form of the letter U, and into the lower, or semicircular, part he put moistened clay; one of the legs was filled with a solution of sulphate of copper, the other with some other saline solution. The two liquids connected by a sort of staple of wire, were one end being in contact with one liquid, the opposite with the other. After a short time that end which had been immersed in the coppery liquid became coated with crystals of sulphate of copper. M. Berquerel's admirable book had been long published, and I had a copy of it a great while before an eminent experimental philosopher in this country published to the world that, by the immersion of copper plates in a solution of sulphate of copper, and by its connection, when so immersed, with a plate of zinc, under circumstances which I need not recapitulate, he had converted the copper plates (which is a double sulphate of copper and zinc) into sulphate of copper (vitreous copper); and that this was by the abstraction of a portion of the sulphur and of the iron from their previous combination. I repeated the experiments, using a solution of sulphate of copper which was saturated (or would dissolve no more of that salt); my copper pyrites soon showed an incrustation—or became peacock copper—but, to my surprise, the colour became no deeper by being left several days. I then thought of M. Berquerel's experiments, and on placing a lump of the solid sulphate of copper in contact with the solution, it was rapidly dissolved, although, before the experiment was commenced, the fluid would dissolve no more of that substance. What, then, had taken place which rendered the solution, before turnable, now capable of dissolving more of the sulphate of copper? The answer was obvious—it had been decomposed during the experiment. The decomposition, then, was one of the most easy and obvious possible; the sulphate of copper consists of three different elements—viz., metallic copper, sulphur, and oxygen—and all that was effected was the liberation of the oxygen contained in the sulphate, whereby a sulphuret of copper remained, and so this sulphuret

PROCEEDINGS OF PUBLIC COMPANIES.

TALACRE COAL AND IRON COMPANY.

The adjourned extraordinary general meeting of the shareholders in the above undertaking was held at their offices, 20, John-street, Adelphi, on Wednesday, 13th inst.

W. CHAFFLOW, Esq., in the chair.

The circular convening the meeting having been read, the CHAIRMAN read two letters addressed to the chairman of the meeting.

Mr. Alderman Woon complained that an advertisement had appeared in the *Morning Chronicle*, stating that he was to take chair at the present meeting, and requested to know if it was inserted by any of the directors. He said it was a vile attack upon him to prejudice the minds of the proprietors against him—he knew nothing about it in any way whatever.—Mr. TAYLOR stated that the directors knew "nothing about it," and contradicted it in the next appearance of the same paper.

The CHAIRMAN then stated that out of 140 circulars sent to the proprietors, to invite them to contribute means to enable the committee to take legal proceedings against the concoctors of the company, and to wind up the affairs of the company, only three answers had been received, the writers of which pleaded their inability to do anything towards the object contemplated. One of the three letters, from shareholders in Nottingham, which were read, stated that Mr. Richard Rawson (no relation to Mr. E. Rawson, of London) had been paid 100*l.* to purchase two 50*l.* paid-up shares, but instead of doing which he put down the party's name for eight shares, and paid the deposit thereon, therefore it was contended that the party was not liable for any further payments; the letter concluded by expressing the sorrow of the writer for imputing such improper conduct to a person from whom uprightness and integrity of conduct were so much calculated upon.

Mr. TAYLOR was then about to read the report of the committee, but Mr. WISE stated that it was not a fair report, there having been but one meeting, and he not being in town could not attend; he came to London once, but the secretary was not present with the accounts; he had no idea that he should have been called out of town so suddenly.—Mr. EDWARD RAWSON stated that he had been carefully through all the accounts with Mr. Taylor, and all they could do had been accomplished.—Mr. WISE again said that he had nothing to do with the report.—The report was then read, as follows:—

REPORT.

Your committee have made such inquiries into the general state of the finances of the company as the imperfect nature of the accounts will admit, and it appears from them that, apart from the question of the legality of the purchase, and the payment of such large sums on that account, there has been a degree of negligence and improvidence in disbursing the funds of the company highly reprehensible and incompatible with the prudence and economy necessary in carrying on operations on such a scale as would be requisite to obtain the results held out in the prospectus, and confidently looked forward to by the proprietors. The books of the company require close investigation and revision, for the circumstances do not appear to your committee to warrant so large an outlay as appears to have been expended under the various hands hereafter named. The copies which have been supplied of the Dublin accounts, which, from the acknowledgment of the secretary himself, as well as other evidence, seem to demand particular attention, have been forwarded to Mr. Bird, the manager at the works, for his investigation; we believe him to be an excellent accountant, and from his experience in matters of this character, well fitted for inquiry into accounts so vague as of intricate as these appear to be, as there is no doubt of deficiencies existing, we recommend, that on the accounts being correctly ascertained, proceedings be instituted to recover the same. It is not practicable, neither indeed is it necessary, to enter into any minute or close statement, but sufficient information has been obtained to enable us to lay before you a general view of the state of your finances.

In regard to the first named claims, made for articles actually supplied to the company, and for some of which bills are said to have been given, which were dishonoured, there can be but one opinion; when ascertained to be correct they should be discharged. The second are demands of a nature which your committee think might admit of considerable reduction, and if these can be adjusted satisfactorily, we hope that the two may be liquidated by the payment of the bills now due, and those due in December, or by the proposed arrangement of advancing money, to be placed in the hands of trustees. The third list of claims amounts to 19,000*l.*, which is so serious a sum, that of itself it is sufficient to demand and require the most careful consideration, and would appear, in the present state of the resources of the company, to present an insuperable difficulty.

Your committee have endeavoured, calmly and equitably, to ascertain the nature of the transactions which gave rise to these bills, and to the amount of 20,000*l.* already paid on account of purchase, and they feel imperatively called upon to declare their opinion, that the payments and liabilities relative to the purchase are most unjust, and that the attempt to carry out those arrangements of the original directors and others, must entail ruin upon many of the legitimate shareholders. Your committee strongly advise that the payment of these be resisted to the utmost, and that the acting directors, either of themselves, or in connection with a committee, be empowered to take such steps in relation thereto as they may deem advisable.

Your committee think that the whole of the accounts and papers should be submitted to examination, and your committee forwarded a list of the claims, and the copies of the books sent from Dublin, to the manager of the works, to examine and report thereon, and the following letter has been received from him, viz.:—"Yours of the 4th inst., also the parcel containing books, &c., are in hand. I am sorry to say that it will be impossible for me to report upon them without the following means—viz., a journal day book, sales book, bill book, bankers' draft, and all other vouchers belonging to the Dublin branch, and also their letter book. If, however, there are none of these, I must say I never, in the whole course of my life, met with such a set as those in my possession, power, and on man studying his character would have returned them to his employer." That your committee have requested the Dublin secretary to forward the books required from Dublin, but up to the date of signing this report they have not arrived. That your committee have sent circulars to every proprietor, requesting to be informed what sum they are willing to advance to a fund to pay the just claims, and also to those shareholders who have not paid their calls, requesting to know when they will do so, and the replies received your committee will produce to the meeting.

After, and during the reading of the report, Mr. TAYLOR read extracts from several letters; the following from Mr. Bird, the manager, we consider of such importance as to warrant its insertion:—"I have taken a hasty glance over the company's Dublin books, likewise had rough sketches of the principal items of the accounts, but from the complicated and confused manner in which they appear to have been kept, at the same time, it being my opinion they are not true copies of the original ones, I consider it of the utmost importance to have them now in the hands of the secretary or Dublin directors, with all the vouchers. The errors I have already been able to detect, amounting to 40*l.* 1*0s.* 6*d.*, convince me the more, that by having the original books a greater amount of deficiencies will arise. It is painful to me, but I am compelled to say that a more disgraceful set of books never went through my inspection; and further, that the secretary is deserving very severe censure, and should I even attempt to draw a balance of those, I should consider it injustice, and an insult to the proprietors at large."

Mr. TAYLOR stated that there was a deficiency of 9138*l.*; they had not been able to procure the Dublin books, and that no doubt there had been gross mismanagement relative to the expenses incurred in Dublin; the Dublin directors, acting under the advice of Mr. Hornidge, had refused to send the books, therefore the correctness of their accounts could not be ascertained.—Mr. HORNIDGE explained, that the Dublin directors would send copies of the books, &c., but they would not part with the original documents.—Mr. TAYLOR replied, that the committee were empowered to demand books, documents, &c., whilst, on the other hand, Mr. HORNIDGE contended that Mr. Taylor assumed powers to the committee to which they were not entitled.—Mr. TAYLOR replied that it was a great pity the books had not been produced, as, doubtless, they would have removed all doubts; he had written two or three times to say that if they did not have the proper books it would be impossible to make a report.—Mr. HORNIDGE said that the books would be sent to him, but would not be suffered to go out of his custody.—Mr. RAWSON was sorry that, being on the committee, he was not, therefore, looked upon as an honest man; he could not see why he should not be trusted with the books.—Mr. WASTON thought that the publication of Mr. Bird's letter was dangerous.—Mr. TAYLOR explained, that the secretary had admitted that there were deficiencies.—Mr. ALDERMAN WOOD was anxious that the accounts should be further investigated; he wished to know whether the observa-

tion of Mr. Taylor, relative to the 9138*l.* deficiency, applied to the expenses in Dublin and London? Did not the greater part of the amount—say 9000*l.*—apply to Dublin?—Mr. TAYLOR replied that it certainly did not—whilst Mr. RAWSON stated that the greater part of the amount certainly referred to Dublin; he had no doubt but that if the books were produced it could be satisfactorily accounted for.—Mr. Alderman WOOD was certain that the deficiencies, as far as they referred to London, could all be satisfactorily accounted for; he advocated a further inquiry, and entered into a discussion of the report which had been read; he wished that the classification of the liabilities should be further inquired into. The first class—the report stated they were bound to pay; in the second, some were reckoned bad and others good; and the third, which amounted to 19,000*l.*, were objectionable altogether; under these circumstances, the only course to pursue was the fullest investigation. The hon. Alderman then moved a resolution to that effect.

Mr. EDWARDS wished to know if the proprietors would hear any more of the original report?—Mr. TAYLOR said that he was about to propose, in reply to Mr. Alderman T. Wood's motion, that the original report should be read; he stated that the gentlemen present who had counter-statements to make had been given every opportunity, but as yet no satisfactory answers to the accusation contained in that report had been made. When the question was first brought before the proprietors, in February, he (Mr. Taylor) had stated his belief that there had been gross fraud and collusion practised in the purchase of the property; he then merely spoke from what he had heard from various parties, and had no documents. A committee had been appointed by the shareholders, to investigate these charges, and, by actual documents, had proved the truth of his statements; that committee's report was the one he now moved should be read; he had told the meeting at the time he alluded to those circumstances, that he should "nothing extenuate, nor set down aught in malice," and he had kept to his engagement. It had been stated that there was in his statements gross imputations, and but a little leaven of truth, yet facts had come out which proved that the leaven of truth was very large. He then concluded, by moving that the report be read.—A PROPRITOR wished that the report should be read, and did not think that counter-statements should be made by Mr. Taylor.—Mr. TAYLOR stated that he wished to relieve the committee from the imputation which had been cast upon it by the machinations of bad men.

Mr. WISE, amidst great noise and confusion, stated that they were not going on in accordance with the object of the meeting; it was not by casting imputations from one party to the other that the difficulties would be relieved, they should, on the contrary, unite and meet them, and do their best to get out of them; if they pursued their present course, the proprietors would be plunged into endless litigation.—Mr. TAYLOR thought Mr. WISE would not willingly impede public justice; he had risen to propose a resolution in reply to Mr. Alderman T. Wood, and he could comment as he pleased on the subject of his motion. He was stating that he went to work with a full belief that the statements about the value of the property were not true, and was determined that his little all which he had invested in the company should not be lost for want of exertion on his part; he found that the Pietou property was not the property it had been represented, and from the reports of two able and experienced men, as well as his own observations during the three months he was on the spot, he was fully convinced that the company had been grossly imposed upon by the exaggerations of the value of the property. The particulars thus obtained were, together with what correspondence and books that could be obtained, put into the hands of a solicitor to see in what manner the property had been purchased, and the report that solicitor had given in was the one that he wished to have read; a counter-statement had been prepared with all the skill and ingenuity that the other party possessed.

An angry conversation then ensued between Mr. Deputy Weston and Mr. Ashurst, which ended in the greatest confusion, Mr. Weston stating that the report in question "began with a lie and ended with a falsehood." Upon this the confusion and noise that prevailed was indescribable. When quietness was a little restored, Mr. TAYLOR moved that a committee be appointed to take such steps as they may think proper in relation to the claims made upon the company; that the said committee do act as trustees of any money that may be collected, and that the report of the now acting London directors, with the explanatory statement of the original directors, be read, and printed and circulated amongst the proprietors.—Mr. WASTON would not object to the reading of the report, provided the explanation was read afterwards; he would not have it said that the report had been shelved and smothered; the report was full of inferences and mis-statements, whilst the explanation was full of facts.—Mr. HORNIDGE expressed his firm opinion that no money would be raised if it was read.—Mr. RAWSON objected to the report being read, and thought that a committee to investigate the accounts would answer every purpose; he confessed he was a little disappointed at not having received a reply from Dublin as to the subscription.—Mr. HORNIDGE stated that he was prepared with a reply.—Mr. RAWSON stated that he would decline again acting upon any committee, if the Dublin books were not placed in the hands of the committee; no documents had been supplied from Ireland to clear up the mystification and darkness of the accounts were involved in.

Mr. ASHURST strongly recommended the reading of the report; there were threats of action upon Bills of Exchange pending upon the proceedings of that meeting, and the longer the consideration of the legality of these bills was put off the more certain was the entire ruin of the *bona fide* shareholders; the actual liabilities they might raise, but the purchase-money (19,000*l.*) was almost out of the question.—Mr. Alderman WOOD agreed with Mr. Ashurst's suggestion, and had no objection to the two reports being read, but if the shareholders wished to judge upon the formation of the company, they should form a committee of a body of the proprietors, and take a chronological report of the whole of its affairs from the very beginning; he did not wish to screen a single fact connected with the company; he wanted the question of the 19,000*l.* to be gone fully into, and if the claim were found to be unjust all would combine to resist it; if on the contrary, it was found to be just, all they had to do was to pay it in the best manner they could; they either had or had no property—they were either liable to pay or were not—these were the questions to be decided; what was the use of meeting after meeting; their bounden duty was to "take the bull by the horns," not suffer him to trample them to pieces; if error was proved to have been committed, then let the guilty be punished.

Mr. RAWSON observed that they had not yet heard the result of Mr. Hornidge's application to the shareholders in Dublin.—Mr. HORNIDGE stated that the feeling of the Dublin directors was, that it was due to themselves and the shareholders that the report submitted to the meeting on the 12th of September, and the answer delivered on the 30th should be read and printed; the Dublin shareholders were ready to pay up their calls, but would not do so until the liabilities they had incurred upon themselves in signing bills were removed; they were willing to pay the calls, but were unwilling that the money so raised should be applied to pay off the liabilities of the company in England, whilst many had rendered themselves individually liable, and had besides a debt of 1348*l.*; he had consulted Mr. Shaw, Mr. Macmaster, and many others, who all agreed in what he had stated; he inquired—had they a board of directors in London? He did not think they had ten directors, and if they had not their proceedings were illegal.—Mr. ASHURST did not think that ten *bona fide* shareholders could be found qualified to become directors.—Mr. HORNIDGE could find them in Dublin.—The CHAIRMAN stated that he had been given to understand at the last meeting that several gentlemen in Dublin were ready to advance their thousands with the shareholders in London to pay off the liabilities, but now it appeared they would pay nothing.—Mr. HORNIDGE remarked, that if the directors got in the calls in arrears they would not have many liabilities left.—The CHAIRMAN said that if all acted like the Dublin directors there would be no money raised; he was sued for 18,000*l.*, and was threatened for an equal amount.—Mr. Alderman WOOD stated that he was sued for 7000*l.*.

The CHAIRMAN then put the question, that the report be read, which was carried. Mr. ASHURST was accordingly about to read it, when he was interrupted by Mr. SAMUEL BRIDGES, who claimed to be heard.—The CHAIRMAN then stated that there was a charge against Mr. Samuel Bridges for having received money from a party in Keworth for the company which he had not accounted for.—On this charge being made the speaker was tremendous, Mr. BRIDGES denying the fact in *fact*.—Mr. WISE was very indig-

insoluble in water, it had been precipitated on the copper pyrites (yellow copper ore), and coated it. It thus became most evident, that as the sulphate disappeared from the solution, the sulphur made its appearance on the pyrites. But if the iron and sulphur had been extracted from the yellow copper ore, they should have been found in the solution, for there was no means of escape for them. Accordingly treated the liquid remaining, and found no more iron in it than would have been, had there been no electric action. I also used solutions of those metals were, in like manner, precipitated on the pyrites. I also used the nitrate of copper, but with this no change was effected on the copper pyrites. The changes, therefore, appear when sulphates are used, but not when nitrates are employed. I, therefore, hold it as proved that the change in the copper pyrites is a mere precipitate, and that the whole experiment is but a slight, unimportant, and obvious modification of what M. Becquerel has discovered and published several years previously. It had been discovered by Mr. R. W. Fox, and has been repeated in scores of places by me, and in a few others by other parties, that currents of electricity traversed the metallic portions of copper and lead lodes, Mr. Fox had been unable to discover any in lodes, and neither he, I, or any other English experimenter, had found any trace of electricity either in the rocks or in the non-metallic parts of the lodes. Two or three years since, however, Professor Reich, of Saxony, found that, by connecting a metallic wire with a non-metallic part of the vein or rock, he obtained a current, and, before that time, Mr. Christie, secretary of the Royal Society, had suggested that the galvanometers used by Mr. Fox, Mr. T. Petherick, Captain Bennett (of Polbarrow), and myself, were not very delicate, it for a long time struck me that the use of a more sensitive apparatus might disclose currents where we had previously been unsuccessful. I accordingly obtained from Messrs. Watkins and Hill, one of the most delicate galvanometers ever made, and I have instituted a great many experiments in East Wh. Croft, which is a copper mine, and worked in greenstone, and at Rosewell-hill, the mine, which is in granite. In the former I had the aid of Captain W. Rutter, and in the latter of Captain W. Hollow. In both I obtained currents, not only from the copper and tin ores in the lodes, but also when a metallic point and a non-metallic one, or two non-metallic spots were connected; and this, too, whether the earthy matter formed a part of the lode, or whether it belonged wholly to the rock at a distance from the lodes. I also used zinc as well as copper points to connect the localities under trial with the galvanometer, and employed them either together or alternately. On many of these occasions, the reversal of the zinc and copper points reversed the directions of the currents; and at such times the directions were precisely those which would have obtained had the plates formed part of a simple voltaic arrangement. It, therefore, seems that induction often, if not always, proceeds through the rocks; and it has appeared that currents traverse the rocks as well as the veins; it also seems that though the action in the rocks is of the same kind as that in the veins, it is much less energetic; and as the reversal of the plates often reverses the direction of the currents, it becomes us to inquire what proportion of the experimental results yet obtained may be due to instrumental errors, or causes existing in the apparatus employed. I do not deny the existence of currents in the veins; but I must submit, that a very careful examination of the experiments yet made is requisite, in order to determine whether some portion of them may not have originated in the action between the veins and rocks, and the portions of the apparatus with which they have been in contact.

In answer to an inquiry by the Rev. John Pannet, Mr. HENWOOD said, that the quantity of action obtained when the rocks were experimented on, seemed to have no relation to the distances of the spots from the lode; and that he thought to attribute all the electricity to the lodes (to the entire exclusion of any in the rocks) was not a strictly legitimate inference, and could only be maintained by admitting evidence of no doubtful a character as would be rejected in any court of law.

(We are requested by Mr. Henwood to correct his statement with respect to M. Becquerel, who used the "nitrate," and not the "sulphate," of copper, in obtaining the sulphuret.)

IMPORTANT INVENTION IN MACHINERY.

Our attention has been called, by an article in one of the provincial newspapers, to a very important mechanical invention, for which a patent has recently been granted to two Scotch gentlemen, and which promises to effect a greater and more beneficial change in the working of machinery than has taken place since those most brilliant discoveries of Watt. The two great drawbacks of the steam engine (besides the large space it occupies) have been the bulk, and the consequent expense of the fuel which it requires—the latter preventing its application to many purposes for which it would otherwise have been a most effective agent; and the former impeding its locomotive energy and confining it, particularly as regards navigation, within comparatively narrow limits. Any reduction in either of these respects is thereby obviously so much clear gain. The invention to which we allude promises to effect a prodigious saving in both, by diminishing the expenditure of fuel to somewhat less than one-fifth of what is now required for an equal degree of power. It has already, we are informed, been put to the test by the construction of an engine of about 20-horse power, which has for some time been driving all the machinery of an extensive foundry with no larger consumption than we have just mentioned, and with every prospect of a considerably greater reduction being effected by some slight changes in the details. The motive power used is the common atmospheric air; and another great advantage of the new engine arises from a saving of space, equal to what is usually occupied by the furnace and boilers of a steam-engine. If these things be so, it is impossible to calculate the results to which so important a discovery must lead. The following is a description of the engine referred to:—

DESCRIPTION.

The air-engine now working at the Dundee Foundry, for which a patent was lately taken out, is the joint invention of the Rev. Dr. Stirling, of Glasgow, and of his brother, Mr. Stirling, engineer, Dundee. The principle of the invention consists in alternately heating and cooling two bodies of air confined in two separate vessels, which are so arranged, that by the strokes of two plungers, worked by the engine, the whole of the air contained in one of the vessels is sent to the lower end immediately over the furnace, and is consequently made quite hot, while the whole of the air contained in the other vessel is at the same time transmitted to the upper end, which is cut off from any communication with the furnace, and is therefore comparatively cold. The expansion caused by the heat renders the air in the one vessel alternately much more elastic than that in the other; and the two ends of the working cylinder, which is fitted with a piston similar to that of a steam-engine, being respectively connected with the two air vessels, a preponderating pressure is produced, by turns, on each side of the piston, which is thereby pushed to the opposite end of the cylinder, and so, by the alternate action of the plungers in the two air vessels, it continues a reciprocating motion, and is applied to turn a crank in the same way that a steam-engine does. It has been satisfactorily shown that this engine may be worked with very great economy of fuel as compared with a steam-engine. The principal means of producing the saving is this—that of the heat which is communicated to the air from the furnace, only a very small portion is entirely thrown away when it comes again to be cooled; for, by making the air, in its way from the hot to the cold end of the air-vessel, to pass through a chamber divided into a number of small apertures or passages, the great extent of surface with which it is thereby brought in contact, extracts from it in the first place, but only temporarily, the greater part of the heat, and afterwards restores it to the air on its passage back again from the cold to the hot end of the vessel. The process of cooling is finally completed, by making the air pass through between a number of tubes in which there is a current of cold water, and thus far the heat cannot be made available again; but the portion which is abstracted in this way is very small. As a sufficient expansive power could not be attained in so small a space without greater alterations of temperature from using air of the common density of the atmosphere, the air used is pretty highly compressed, and a much greater power is thereby obtained upon a given area of the piston. A small air pump, worked by the engine, is therefore necessary to keep up the air to the requisite density; but very little power is expended on this; all that is required of the pump, after the engine has been once charged, being to supply any loss of air that may arise from leakage, which is found to be very trifling.

The machine has been working occasionally for above six months, and it has been proved to be capable of performing advantageously the amount of work which the inventors had anticipated from their calculations and previous experiments. It has now for upwards of a month been driving all the machinery at the extensive engineering works of the Dundee Foundry, which a steam-engine of approved construction had hitherto been employed to do; and it has been ascertained that the expenditure of fuel is, *calculus paribus*, less than one-fifth part of what was required for the steam-engine, but as considerable improvements are contemplated in some of the details, it is confidently expected that a much greater saving will eventually be effected. The whole machine, including the furnace and heating apparatus, stands in about the same space that a steam-engine of equal power would occupy without its furnace and boiler. Taking into account the saving of space along with the vast economy of fuel, this invention must necessarily be of immense importance for all ordinary purposes, requiring motive power. As an instance, it would reduce the expense of the power employed in driving machinery in Dundee alone by at least 20,000*l.* or 30,000*l.* a year. But, viewed in reference to the purposes of navigation, it would lead to results still more extraordinary, and will render a voyage to India round the Cape by machinery a matter of perfectly easy accomplishment.

ROYAL INSTITUTION OF CORNWALL.

The annual meeting of this society was held in the room of the institution, and was well attended.

Sir CHARLES LEMON, Bart., in the chair.

ment, stating that it was most unfair, and that he was ashamed of the whole proceeding.—Mr. SPOONER demanded the name of the party, and on his promise to be satisfied if an answer was given, the CHAIRMAN stated that Mr. Aikin, of Keyworth, held a receipt signed by Mr. Spooner for 140*l.*, which did not appear upon the books of the company, and had not been accounted for.—Mr. SPOONER declared that the whole was false, and then set down amidst the greatest imaginable confusion.—Mr. ASHURST then read the report prepared by him at the request of the directors, which will be found in another column; its great length, however, precludes the possibility of our giving insertion in our present Number to the counter-statement read by Mr. Hornidge, but which will appear in our next—the importance to be attached to the inquiry rendering it highly desirable that both documents should be given entire.—Immediately after the reading of the report by Mr. Ashurst, the counter-statement of Messrs. Wood, Weston, Davis, and others, in explanation, was read by Mr. HORNIDGE.

Previous to the reading of the reports Mr. Alderman T. WOOD said he regretted that in consequence of a domestic calamity he should not be able to stay, but he gave the directors notice that he should claim to make some observations hereafter.—Mr. Deputy WATSON claimed the same indulgence.—Mr. TAYLOR also claimed the right of giving an answer to any fresh statements that might be made.

After the reports had been read, Mr. RAWSON said that it was quite absurd to suppose more than 5*l.* or 10*l.* per share would be called for.—Mr. WESTON calculated upon 15*l.* per share.—A conversation then ensued upon this subject, which was concluded by Mr. BEDDOME expressing a wish that the meeting should adjourn to consider the reports, nothing could be said upon them at present. It was most important that the dates of the two statements should be compared.

Mr. WATSON wished to know what was to be done with the actions then pending.—Mr. WATSON stated that they must be individually defended.—Mr. BEDDOME recommended that money should be solicited from each shareholder, and if that did not succeed, the sooner they got the whole affair into Chancery, for its dissolution, the better.—Mr. WATSON could almost agree with all that Mr. Beddome had said, but they must first get rid of their difficulties, then go to Chancery.—Mr. ASHURST had some notion that bills founded in fraud could be got rid of. Most of the liabilities consisted of bills in the hands of third parties.—Mr. BEDDOME thought that there would be no difficulty in proving the illegality of the partnership, from the circumstance of six important posts being filled by one individual, he alluded to Mr. Alderman T. Wood having been director, chairman, vendor, purchaser, solicitor, and trustee; no party holding all those contrary situations could act fairly. It had also been stated that there were seventeen original proprietors, whereas only eight parties appear in any of the deeds.

Mr. ASHURST was glad that Mr. Beddome had attended the meeting. There was one point he must allude to, although he was sorry to do so in Mr. Alderman Wood's absence. He could not imagine how any lawyer could have placed himself in the position Mr. Wood had, he having sold, purchased, drawn up the deeds, and, indeed, managed the whole concern himself—to him, it was inexplicable. He (Mr. Ashurst) then entered at some length into the subject of the illegal formation of the company, and advised that the whole affair should be put into the hands of a committee, and which should be empowered to take such steps as they thought proper to secure justice to the bona fide shareholders. If, as had been recommended, they should go to Chancery, there was but little doubt but that they should get a decree, still they would only have a barren result, as all the parties would not be able to meet it. The liabilities amounted to 33,000*l.* The three present acting directors had ruin staring them in the face; judgment had been recorded against them, all of them have families, and if something was not done, they must go to prison; the only chance for their escape existed in the appointment of a committee of bona fide shareholders.

Mr. Deputy WATSON stated, that instead of 33,000*l.*, the liabilities might be reduced to 25,000*l.* As it had been hinted that parties had had part of the money received by Leason and Baker, he declared most solemnly, and would say it, if it were the last word he had to speak, that he never received, either directly or indirectly, one farthing of the 20,000*l.* It was not correct to throw out such insinuations; he thought the renewal of the bills had been managed most judiciously; instead of the instalments being paid monthly, they ought to have been yearly. He had stated the same in February, and felt assured that if it had been so, many other free shares would have been given up for the benefit of the company; but the bills had been accepted, and, being in third hands, he did not see but that, by law, they were bound to pay them. It would do no good to plunge the company into Chancery; if they did, for his part, he must go to prison—he was now a poor man. He had been as great a loser as any man present; he only got a few trumpery shares, which he sincerely wished he had never seen.

Mr. ASHURST could not understand how property, the lease of which was worth nothing, could, in ten months, be worth 110,000*l.*—Mr. WATSON stated, that there was no property like it.—Mr. BEDDOME wished to inquire of Mr. Weston the circumstance connected with the shares he received from Mr. Baker.—Mr. WATSON, after some hesitation, replied that Mr. Baker asked him to perform a trust for him to hold those shares, but nothing on earth should induce him to divulge the secret without Mr. Baker's presence. Mr. Baker, at that time, had his entire confidence, but on his turning out so different to what he expected, the shares were given up and cancelled.

Mr. BEDDOME again alluded to proceedings in Chancery, but Mr. ASHURST stated that it would be useless, as there was but one solvent party in the lot.—It was remarked, that Mr. Alderman Hodges had retired from business—circulars having been sent out, stating that his brother had succeeded him.—Mr. ASHURST stated, that Mr. Alderman Hodges was the party he alluded to as being the only one solvent.

A long discussion then ensued as to the best means to get rid of the most pressing liabilities, during which Mr. HORNIDGE was again asked what the Dublin shareholders intended to do, when he stated that the Dublin proprietors would come forward to settle their own liabilities; and as to the bills, he felt certain, from the hands they were in, that every shilling would have to be paid.—After some further conversation, it was resolved.—"That the meeting be adjourned until Wednesday, the 3d of November, at this office, at one o'clock precisely, and that a committee be appointed to take such steps as they may think proper in relation to the claims made upon the company, and that the said committee do act as trustees of any money to be collected."

A curious discussion then commenced, for, after all the claims Messrs. Wood and Weston and their party had made to have the counter-statement read, as well as the acting directors' report, nobody would acknowledge that it was theirs; Mr. Wire asked it altogether, as also did Mr. Weston; but at last Mr. TAYLOR asked Mr. Hornidge to explain, as he read the reply, which it was.—Mr. HORNIDGE then stated, that it had been read by Messrs. Wood, Davis, and Weston, and subsequently by Messrs. Hodges and Hyndman, of Dublin, and that they only regretted the explanations were not fuller.—Messrs. Chappelow, Taylor, and Hornidge were then appointed to act as the committee.

Mr. SEABURTH (solicitor for Sir E. Mordaunt, the lessee) stated, that Mr. Edward was quite astonished when he heard that anything had been given for the lease, and that the property was held at a rack rent and full royalties. He considered that the royalties and rack-rent was their full value.—A vote of thanks being passed to the chairman, the meeting adjourned.

DUBLIN RAILWAY.—This undertaking is rapidly progressing to a successful conclusion. Henderson's works, quarrymen, and labourers, are to be seen employed on the works, from the Crescent of Clontarf towards Kesh. In a few years the directors hope to have the line extended to Arragh.—*Dublin Evening Post.*

SOUTH-EASTERN RAILWAY.—Great activity prevails on the line of the South-Eastern Railway, near Tunbridge; the workmen are employed night and day, and it is expected that the road will be opened as far as Tunbridge in March next.

COAST OF LOCOMOTIVE POWER.—The North Midland locomotive power costs 14*l.* per mile; the Birmingham and Gloucester is stated to cost 25*l.* per mile; the North Midland, however, get their coals at 12*l.* per ton. Very different is the case with the Birmingham and Gloucester. The London and Birmingham appears to cost 2*l.* 5*l.*, and they ought to get coals quite as cheap as the Birmingham and Gloucester; we can only make this latter line to cost not quite 18*l.*—the whole run, including the Livery, being 130,747, and the cost 10,130*l.*—*Railway Monthly Journal.*

The annual meeting of this society was held in the room of the institution, and was well attended.

Sir CHARLES LEMON, Bart., in the chair.

Mr. W. M. TWEDDY (the secretary) read the report, which alluded to the recent meeting of the British Association at Plymouth, and stated that although few of its members had visited the museum, and no special communications had been received from them, many of the subjects that came under consideration were of much practical value to this county, and then spoke of the contributions which the association had received from Mr. Couch on the geology of the county, and which would soon be published; and also of the persevering researches of Mr. Peach in his fossil geology of the county—these gentlemen were both members of the institution, and the latter had presented a considerable number of specimens to the museum; this department had also been further enriched by donations from Mr. Pattison, of Looe, and Mr. Box, of Looe. Dr. Barham's investigations into the causes of death amongst the mining population were next noticed, and some of these results, which have been already partially made known on former occasions, were more explicitly dwelt upon; Dr. Barham was also officially engaged in an inquiry into the health of children employed in the mines, which would afford him much valuable information on the equally important subject of the comparative health of the miner. Since last year the floating debt had been decreased by 160*l.*, and it was proposed to have, next summer, a fancy bazaar, to assist in getting rid of the liabilities, there being still 1360*l.* remaining as a debt due by the institution. The report concluded by an expression of pleasure that the society had been able to carry on during the past year several of the researches in which it was engaged in conjunction with the two other scientific societies of the county; for "a mutual interchange of good offices, and a co-operation in those subjects which admit of it, must be useful to all, and tend to excite scientific research and promote the communication of its results."

The treasurer's report was next read, and showed the receipts during the last twelve months to have been 203*l.* 17*l.* 6*d.*, and the expenditure 109*l.* 14*l.*—leaving a balance in favour of the society of 4*l.* 3*l.* 6*d.*

Mr. KNEVE moved that the report be received and adopted; the report afforded distinct evidence that they moved hand in hand with the other societies in this county, and he trusted that the friendly rivalry would lead to the advantage of all.—Mr. TWEDDY seconded the motion, and alluded to that part of the report which spoke of mine accidents; the hon. gentleman thought that many of the accidents were attributable to a want of due caution on the part of the miners, and alluded particularly to the case of the man who was killed on the previous Wednesday, by falling to the bottom of the working in Trevelan Mine; as he was on the mine at the time, he made inquiries into the cause of the accident, and found that the man, who lived at Wendron, which was a great distance from Trevelan, was an industrious person, and was trying to do five hours' work in four; it was thus, he thought, that many over-worked themselves, and were in consequence subjected to accidents which would otherwise not take place.

MINERALS OF UNCOMMON OCCURRENCE.

Mr. W. M. TWEDDY read a paper of his own on some notices of minerals of uncommon occurrence recently found in Cornwall. They were wood tin, mineral pitch, the pseudo-morphous crystals found in Wheal Coates, and native blameth.—Until the last few years, the existence of wood tin in the Cornish tin lodes had not been known; though there could be little doubt that the fragments of wood tin found in stream-works had been portions of veins or beds. Wood tin in the lode, was first noticed at Baleswhiden, in St. Just, where it occurred mixed with a reddish-white felspar; it had since been found in a mine in the parish of Roche, and in St. Agnes. Specimens from each of these places were presented and technically described by Mr. Tweddy.—The occurrence of mineral pitch in the Cornish copper lodes was of rare occurrence. Many years since, some were found in Freshley, and more recently it had been obtained in white quartz, at East Wheal Crofty.—The interesting subject of the detached crystal of tinstone and tinstone in the form of crystals of felspar, found in sand at Wheal Coates, was again spoken of; and reference was made to the paper read last week by Mr. Carne, at the meeting of the Geological Society at Penzance. Mr. Tweddy presented a large number of specimens, showing the process of change in various stages, and he particularly directed attention to some in which the infused portion of tinstone had not sufficed to fill the cavity left by the felspar, in which case crystallisation had taken place, and the tinstone had assumed its natural form.—Native blameth, until recently, had only been noticed as occurring in small quantities disseminated through the matrix, commonly of Jasper, which, Mr. Tweddy observed, had excited a strong suspicion in his mind, when the specimens on the table were first shown, that they were artificial. A comparison with others, and an analysis by Mr. Pridmore, had convinced him that his suspicion was not well founded. The specimens had been found in a large unproductive lode in the neighbourhood of Truro. In St. Just also, some fine specimens had been recently obtained.—Schiefer spar has occurred at Levant, with pearl spar of very great beauty.

FOSSIL ORGANIC REMAINS.

Mr. PEACH, of Goran, read an interesting paper "On the Fossil Organic Remains of the South-east Coast of Cornwall, and of Bodmin and Menheniot." To many of our readers it is known that Mr. Peach has pursued the study of fossil geology in Cornwall with an assiduous perseverance that would have done honour to many whose names have been rendered famous for their pursuit of knowledge under difficulties; and the result of his inquiries has been the accumulation of a vast number of facts bearing on some interesting theories with reference to the primitive geological strata of this county; the paper was accompanied and illustrated by a number of specimens and drawings. The places in which Mr. Peach had discovered fossiliferous rocks and strata, were Verran, Goran, St. Austell, Portphen, Charlestown, St. Bixey, Tywardreath, Polverton, Fowey, Lanteglos, Polruan, Tolland, Portloe, East and West Looe, Bodmin, and Menheniot.—A conversation took place on the part of Mr. Peach's paper in which he spoke of the occurrence at Goran of fossil shells, "parted by the cracking of the rock, and the spaces filled by a vein of white quartz"—the parts of the shell, as it were, heaved, showing the manner in which mineral veins have been thrown out of their course.—Mr. R. W. FOX was of opinion that the fact stated by Mr. Peach, and some other analogous facts, certainly proved that the veins were formed subsequently to the deposition of the organic remains, and that the veins were not to be attributed to igneous action, because if the siliceous veins had been injected in a state of fusion, it would have decomposed the shell much more decidedly than it seemed had been done. He thought they must conclude that the siliceous matter had been deposited by chemical agency going on very slowly in the rock itself. In confirmation of this view, Mr. Fox stated that Mr. Hunt had discovered the existence of silica in the water of the mines of Cornwall, which would be deposited when it came in contact with bodies with which silica may combine.—Dr. BARHAM (if we rightly understood him) was of opinion that, supposing fissures to have taken place in a rock, it was possible that any substance at any temperature may afterwards have been deposited without affecting a body placed at the sides of the fissures.—Mr. W. M. TWEDDY doubted if it was necessary to assume that siliceous veins had been infused at a high temperature, since water containing silica would account for the deposition. Mr. Tweddy raised the question, supposing the silica was injected at a high temperature, it must necessarily have destroyed the substance of the shell; as in the rocks of Cornwall they found that the substance of the shell, the calcareous part, was almost always removed. They had only the cast, showing that the shell had been there.—Mr. PEACH said it was not an inevitable rule that the calcareous matter of the Cornish fossils was destroyed. He had found a great many with the calcareous matter on them, but wherever these organic remains were found still retaining calcareous matter, the rock on which they were found approached to limestone. Mr. Peach pointed out two specimens on the table which were still highly calcareous, as might be proved by applying acids, in which they would freely effervesce.—Sir C. LEMON and Mr. MOYLE also joined in the conversation on the subject; the latter gentleman speaking of the gradual deposit of siliceous matter which he had witnessed, in fissures formed by earthquakes; on which Mr. FOX spoke of the Geyser springs, on being surrounded by siliceous deposits in various degrees of hardness.—Mr. PEACH presented some specimens of *Hydra* and *Ammonia*—*Ammonia*, attached to the wing feathers of gulls. Mr. Peach stated that he had obtained a specimen of sea weed, evidently recently detached from its place of growth, which had a large number of these shells attached to it.

YELLOW SULPHURET OF COPPER.

Mr. W. M. TWEDDY then read a paper, written by Mr. Robert Hunt, the secretary of the Cornwall Polytechnic Society, describing some experiments undertaken with a view of examining the nature of the decomposition which takes place in the yellow sulphuret of copper when made part of a galvanic circuit, and having a practical bearing on the conditions in which ore is found in this country.—The paper having been read, the thanks of the meeting were accorded to Mr. Hunt.

EARTHQUAKES.

Dr. BARHAM presented a paper by Mr. W. J. Hammond, F.R.S., F.G.S., "On the Shocks of Earthquake which have been noticed in Cornwall, Devon, and Dorset." The shocks of which Mr. Hammond had been able to discover records or obtain information were first a number; the last was on the 23d of February, 1793; the second, on the 10th of July, 1787; the third, on the 20th of October, 1807; and the last, on the 23d of January, 1809. The first is described by Mr. Hay, in his *History of the Tamar and Fowey*, vol. 1, page 116; the second is recorded in Dr. Barham's *Natural History of Cornwall*, pp. 22-23; the third was noticed in the *Cornwall Gazette* of the 27th of October, and 2d of November, 1807. The fourth shock is said to have been felt

at the Scilly Islands; and an account of it, by the Rev. George Woodley, of St. Mary's, was read before the Royal Society on the 2d of February, 1839.

HEALTH OF THE MINING AND NON-MINING POPULATION.

Dr. BARHAM made some remarks on results obtained by him from a minute abstract of the register of deaths for the parishes of St. Mary, St. Clement, St. Allen, St. Erme, St. Agnes, and Perranarabudoe; these results were arranged in a series of tables, which exhibited the male and female mortality at different intervals of age, from one day up to 100 years.

Mr. PEACH read a few brief extracts from notes on natural history, which he is in the habit of making of any remarkable facts or occurrences that come within the scope of his observations.

The thanks of the meeting were voted to the several authors of papers contributed to the institution, and to Sir Charles Lemon for his conduct in the chair; Sir CHARLES, in reply, said that, being the head of the three principal scientific bodies of the county, it was his anxious wish to do his duty to all, without preference to any, and it was highly gratifying to notice the progress of this society—the objects it had in view, at its formation, had been fulfilled, and other things had been since taken in hand, which had been attended with nearly the same success, so that the duties that had devolved upon the society were very important; all that was wanted to give greater effect was that the funds should be a little larger, and he hoped during the present year many would take the matter into consideration, and perhaps larger funds might be obtained; he was persuaded the more the institution was known the more it would meet with favour from the public.

PROPERTIES AND CHEMICAL CONSTITUTION OF COAL.

[Continued from page 322.]

The value of anthracite coal for the purposes of fuel becoming daily more apparent, it may be desirable to state the cause of its combustion being so much more difficult than bituminous coal.

The attraction of cohesion among the constituent particles is greater in anthracite than in any other description of coal, and causes its extreme hardness. To overcome this force, and to separate the particles to a sufficient distance from each other to enable the chemical affinity of the oxygen for the carbon to overcome the attraction of cohesion, which exists between the particles of carbon for each other, a greater heat is necessary than for the production of the same effect in any other description of fuel. Unless, therefore, the heat to which the anthracite coal is exposed be sufficiently intense to overcome this cohesive attraction, no chemical union between the oxygen and carbon takes place. Whatever, therefore, lowers the temperature of the burning fuel sufficiently to restore the preponderance of the attraction of cohesion over that of the chemical affinity, at once stops the combustion, notwithstanding the otherwise favourable circumstances in which it may be placed, in consequence of a rapid draught, or whatever else tends to promote combustion in ordinary cases. If, however, the fuel be maintained at a high temperature, a comparatively small supply of air will maintain the combustion, although it will not produce the maximum effect which under other circumstances will be obtained. For, in this case, the product of the combustion escapes in the state of carbonic oxide; in the other, viz., that of complete combustion—the product is wholly carbonic acid gas.

When anthracite is suddenly thrown into a hot furnace it splits into innumerable small pieces, and these lie so close together that they effectually stop the immission of the air necessary to support the combustion. The extreme fragility of anthracite, when thus suddenly heated, arises from a carbon being a slow conductor of heat; from which cause the outside portions, when heated, expand and separate from the inner and colder parts, which in turn detach themselves from the still more central portions. With coke and charcoal this effect is obviated by their porosity, which gives to the mass a sufficient degree of elasticity to resist this action—and with common coal the elasticity is produced by the bitumen. The fragility of anthracite may, however, be almost entirely obviated, by slowly heating it before it enters the furnace. By this means the combustion is greatly promoted, and the greatest possible effect will be produced when this is combined with the method of introducing heated air into the furnace.

Several methods have lately been tried for obtaining an artificial fuel possessing greater calorific power than coal or coke. Various mixtures have been proposed, consisting principally of coal dust and coal tar—sometimes simply in this binary combination, and sometimes mixed with calcareous siliceous, and other substances. The addition of coal tar undoubtedly increases the heat which may be obtained from a given weight of fuel, for calculating by the theoretical data already given, it appears that if the coal tar be converted into two-thirds carburetted hydrogen, and one-third carbonic oxide, it will produce from a given weight about 30 per cent. more heat than coal. Professor Buckland has described the results of some experiments made on this description of fuel (*Report Brit. Assoc.*, vol. vii. p. 85), by which the increase of effect appears very considerable. But the mode of experimenting is not sufficiently detailed to judge how much of the effect is due to the chemical nature of the mixture, and how much to the difference in the quality of the coal with which the comparison was made. The only mode of obtaining any definite result would be by comparison of the same quality of coal—first in its ordinary, and then in its compound state. Whatever be the value of the invention, however, as a means of obtaining a higher calorific power, in a given weight of fuel—a subject of the highest importance in steam navigation—it is certain that it possesses considerable merit as a mode of applying beneficially two nearly valueless articles—viz., coal dust and coal tar.

Still greater results are stated to have been derived from the use of a fuel composed of resin and peat coke. The effect of the combustion of a given weight of this fuel has been stated to be equal to three times its weight of coal; but it is evident that such an excess of calorific power is quite impossible to be derived from the fuel itself, and if it really take place it must be principally produced by some mechanical cause, and not by the chemical properties of the fuel. Resin is one of the purest of the ordinary bituminous substances; and supposing it to be wholly converted into carburetted hydrogen—which is certainly not the case, as it contains about 13 per cent. of oxygen—its heating power in comparison with coal would only be as 1.6 to 1; or the heat produced by its combustion would be about 60 per cent. greater than coal. It is probable, however, that these bituminous substances produce a species of mechanical effect, independent of their calorific power, for in consequence of the large quantity of hydrogen they contain, and which by evaporation is converted into water and discharged from the furnace in a state of vapour, the gaseous products of the combustion are rendered so much lighter by this admixture, that they escape through the chimney with a greater velocity, and consequently a larger quantity of air is drawn through the furnace bars, and a more rapid and more perfect combustion of the fuel is the result. In all cases of combustion the greatest amount of heat will be obtained from those substances that contain the largest proportion of hydrogen, for not only is this mechanical effect produced by the combustion of all these highly hydrogenated compounds, but the gas itself produces more heat than any other substance.

3. On the Nature and Application of the Volatile Products of Coal.—The preceding remarks on the combustion of coal have necessarily anticipated many of the observations which might here have been made upon the gaseous products obtainable by its distillation. One important division of the subject, however, yet remains to be mentioned—the application of these gaseous products of coal to the purposes of artificial illumination. The application of carburetted hydrogen gas to this purpose is well known to be an invention of comparatively a modern date, for although the existence of an inflammable gas derived from the distillation of coal was known so long ago as the year 1739, the first practical experiment on a large scale was not made until the year 1798. At an early period after its introduction Dr. Henry investigated the phenomena of its production and combustion, and we are indebted to him for a great deal of accurate research on the subject.

It has already been observed that the products of the distillation of coal vary much with the degree of heat to which it is exposed, and the rapidity with which the heat is applied. The quantity of the gaseous products also is much increased by employing a high temperature, for a large portion of the tar is then decomposed, and increases the quantity of gas, while at the same time this very objectionable substance is got rid of, to a very considerable extent.

The intensity of light obtainable from carburetted hydrogen varies greatly in proportion to the quantity of carbon it contains. The early products of distillation always contain the most carbon—the quantity diminishing throughout the operation—and the last products consist of nearly pure hydrogen. There is a vast difference, however, in this respect when the combustion of the carburetted hydrogen is intended to produce heat. For this purpose the uncombusted hydrogen is the most efficacious; but for the purpose of producing light the gas must contain too much carbon, as in every case an increase of light follows an increase in the density of the gas. A great difference is observed in gas from different quantities of coal. The gas obtained from the best coals is far superior in density, and consequently in illuminating power, to that from any other coal; but even this is very inferior in both these particulars to that derived from the decomposition of oil, which contains about twice the quantity of carbonaceous matter in a given volume, and its illuminating power is from two to two and a half times greater than gas from coal. One of the greatest improvements, therefore, in the chemical operation of distilling gas from coal would be to combine a larger proportion of carbon with the later products of the distillation. Carbon in its solid state of aggregation, either as coke or charcoal, does not readily combine with hydrogen; but it is evident that it is, by no means impossible for these two substances to combine even in the highest degree of oxidation, in the products of coal-distillation, for a small portion of oxidized gas (which is the most dense of the hydro-carburets) is always present with the early products of the distillation. It is probable, therefore, that a small portion

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CURRENT PRICES OF ENGLISH AND FOREIGN FUNDS.

REMARKS ON THE OPERATIONS OF THE WEEK.

Downing street, Oct. 13.

[illegible]

SALE OF COPPER ORES IN CORNWALL.

rows 19—Bewick and Co. 19 6—Chinnell 16 6—Eaton 15—Heaton 19—Hilda 18 5

[illegible]

LATEST CURRENT PRICES OF METALS.

FIRST QUARTERLY SALE OF TIN BY THE MINERS' COMPANY.

THE SPELTER TRADE.

. Some observations, explanatory of the following tables, with remarks on the present state of the trade, will be found in another column.

THE SPELTER TRADE

aperte	ditto	ditto	ditto	790	2370
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RAILWAY SHARE LIST AND TRAFFIC RETURNS.

Section	Number	Page	of	Pages
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including Northern and Eastern Railway toll. † Rate and toll to Eastern
about 10s. per week; included in the returns. ; The Liverpool and
navigation toll is deducted.
